

Enact: The Future of Quality

A photograph of a man in a light blue shirt and dark trousers, seen from behind, standing in a factory. He is holding a rolled-up document in his left hand and has his right hand pressed against a large glass window. The factory floor is visible through the window, showing various pieces of equipment, shelving, and materials. The image has a blue tint.

Tailored quality intelligence
enables faster, better
decision making.

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InfinityQS® Enact™ is a cloud-based Quality Intelligence platform that provides unparalleled visibility and unmatched insight into manufacturing quality data. Traditional quality systems simply track or collect data, leaving manufacturers to figure out what to pay attention to, how to analyze data – and what to do with that analysis. Enact revolutionizes the role of quality, cutting through the clutter of data to deliver tailored, strategic insight and giving manufacturers the power to enact a global transformation of their processes and product quality. By enabling a new way of looking at data, Enact propels businesses toward a level of quality knowledge that produces real results, fast: reduced costs, increased profitability, enhanced product quality and brand reputation, and a new competitive playing field.

A New Solution for a New Era of Manufacturing

The manufacturing landscape is rapidly changing. Advances in mobile and cloud computing, automation, and connected devices have the potential to give manufacturers a wealth of knowledge about how processes are running, where problems are cropping up, and which products are in or out of spec. The downside? This glut of data can leave you running in circles, wasting limited time, money, and resources trying to sift through it in a meaningful way.

The Enact Quality Intelligence platform streamlines data analysis, placing information into the context of individual roles and empowering everyone, from operators to executives, to make better decisions for better results. Quality and process management and manufacturing intelligence become faster and easier – without sacrificing flexibility or demanding major infrastructure changes. Enact's standardized data-handling methodology, centralized storage hub, and visual dashboards simplify the process of collecting and analyzing quality data – however and wherever it originates – throughout all manufacturing sites. The Enact platform is built around exciting new features that organize data in a way that manufacturers are already familiar with, enabling a deeper understanding of quality processes and helping all users take a strategic view of quality to create a real competitive advantage.

In short, Enact works the way manufacturers do – mirroring the manufacturing process – and provides visibility and insight that go beyond traditional quality systems, offering opportunities for global transformation of product quality and competitiveness.



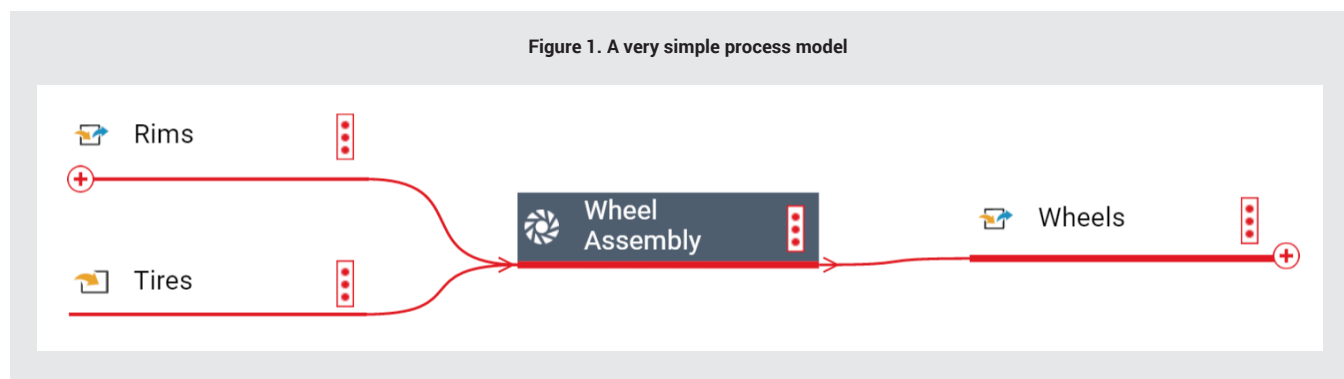
Process Models + Part Recipes = Precision Quality

At its heart, manufacturing boils down to a series of processes: a combination of ingredients or an assembly of components to arrive at the final product. Dig a bit deeper, and you see that each ingredient or component goes through its own processing, all the way back to the raw materials.

Imagine if a Quality Intelligence system automatically knew all the components that went into the product being measured. What if the system also knew which processes created those components? A system that understands how components build and flow to become products makes it easier for users to collect data, provides a more thorough analysis of that data, and is easier to maintain than a system that simply throws data together and leaves you to sort through it.

This capability is one of the most exciting things about Enact: The platform works like manufacturers do. At the core of Enact is the process model, which acts as a framework for the entire system. When you describe your manufacturing operation in a process model, Enact connects products, operations, processes, features, and data collections to create a holistic system that mirrors your real-life operations. Using the process model canvas to specify which components combine to make products — combinations that we call parts recipes — users create a visual representation of the required operations to produce a variety of products.

Figure 1. A very simple process model



The process model simplifies root cause analysis in the manufacturing process. An inspection performed at the end of the production line allows the operator to perform checks or measurements and attribute the results to the appropriate process without requiring individual selection of components or processes. As a result, operators can spend more time doing other work, without sacrificing process or product quality.

Beyond data collection and analysis, process models and parts recipes help speed up deployments. Many manufacturers perform the same operations to make products across multiple production lines or sites. The process model is designed to promote reuse, help ensure standardization, and ease deployment. Further, the model serves as a “backbone” to correlate various parts of the system, enabling users to effectively select and cross-reference items and simplify maintenance of the quality system. Expanding Enact to a new manufacturing site is as simple as adding the site’s processes to the existing process model; data collections are instantly available for use at the new site. In addition, the model provides an intuitive visual depiction of the manufacturing process and product flow, so quality professionals can effectively communicate with process owners in terms that everyone understands.

Quality Data: Easier to Collect, Easier to Use

InfinityQS solutions revolve around a centralized data hub that provides a unified vision of system- and enterprise-wide quality and operational data. Enact is no different. What is different is Enact's ability not only to support a variety of data-collection methods but also to treat data the same no matter how it enters the system.

Standardized Data Handling

Enact is designed to treat all data the same, regardless of how it is entered. With centralized engines that handle analysis of data for specification and statistical violations, calculations, notifications, and compliance with timed data checks, Enact enables manufacturers to get the same value out of data from any source. These centralized engines have several benefits:

If the same data is collected manually and with automated equipment, the data is consistently analyzed based on the established rules. The benefit? Not only can the same results be achieved from different sources, but organizations can be confident that different conclusions aren't being drawn just because the data was collected differently.

Since centralized engines handle this analysis, the equipment sending the data does not have to be able to perform the analysis and calculations, send notifications, or complete other processing. This means that even legacy equipment can provide value from advanced analysis and notification.

A key benefit of centralized engines is that they are ... centralized. Whether you're working with sites around the world, or departments within a site, ensuring everyone is on the same page is important. What's more, maintaining those rules is a chore if things are spread across sites, regions, or countries. With a centralized set of rules and configurations, companies can do more with less.

Manual Data Collection

When most manufacturers think of collecting quality data, they think of either paper forms or electronic spreadsheets. Although both of these tools can collect quality data, it is often left to the user to know which form to use and when to use it. For organizations that have employee turnover, are regulated, or have high customer standards to meet (and these days, who doesn't?), being able to efficiently deliver the right information to the right people is critical to staying competitive. When you think about collecting quality data, what challenges do you face? Some common examples include:

- › Do all team members know what data they're supposed to be collecting?
- › Do they know when they are supposed to collect data?
- › Are they all using the same data collection procedure?
- › Are the most recent requirements being implemented in all departments and at all sites?

These are a few examples of questions that most manufacturers face. Imagine how much your processes could improve if you could not only configure data collections to be used across the organization, but presented those data collection requirements to the right employees at the right time. Enact allows you to accomplish this through central configurations that can be shared by as many departments or sites as needed. These data collections support variable and attribute data.

You can also configure timed collections, in which users are prompted to collect data at regular intervals or in response to conditions from entered values or process states. The ability to use conditions to schedule checks means that Enact tells operators when checks are due; no more managing the clock! Further, organizations can relax, knowing the results of these timed checks are being tracked so they know exactly how many checks were on time, late, or missed.

There's more to quality data than just entering the numbers. To be effective, a Quality Intelligence platform should assist users in performing their data collections by:

Whether you're working with sites around the world, or departments within a site, ensuring everyone is on the same page is important.

- › Providing visual references so users know exactly what they should be measuring using images instead of lots of text or cryptic spreadsheets
- › Prioritizing the data collections based on the user's responsibilities and time requirements
- › Displaying customizable work instructions, as needed, to serve as a reference
- › Allowing data collection beyond only variable or attribute checks to be performed, like checklists used to verify the status of equipment or a production run
- › Notifying users when statistical, specification or regulatory violations have occurred
- › Communicating with shop floor and laboratory devices, when possible, to not only expedite data collection, but help error-proof data collection

For shop floor or laboratory devices that aren't fully automated, gauges can be used for semi-automated collection.

For shop floor or laboratory devices that aren't fully automated, gauges can be used for semi-automated collection. Enact's centralized gauge data handling means that users can collect data on devices like tablets or smartphones that aren't directly connected to the gauge.

With these capabilities, an organization can be confident that users can efficiently collect data and have a high confidence that the data is correct. After all, the quality data is the underpinning of the entire Quality Intelligence system, and everyone has heard the saying, "Garbage in, garbage out."

Fully Automated Data Collection

Enact also supports automated collections from devices that are capable of such actions. Fully automated data collection from PLCs, sensors, checkweighers, vision systems, and coordinate measuring machines (CMMs), to name a few examples, can be carried out using many technologies:

- | | |
|--------------------------------|-------------------|
| › Database queries | › TCP/IP |
| › OPC servers (.COM and .NET) | › XML files |
| › Flat file (.txt, .csv, etc.) | › GE iHistorian |
| › Serial/RS-232 | › Wonderware Live |

The primary benefits of collecting data from these sources are they are considered "free data" by most organizations and are free of the errors of manual data entry. Further, these automated systems are often the inputs to manufacturing processes, which means if these systems can be monitored and controlled, product quality should never be an issue. Of course, understanding how processes impact product quality and having a system in place makes it easy to watch automated data for specification limit or statistical violations.

As mentioned above, Enact's centralized engines take care of monitoring such automated data streams. With flexible tools to connect to these automated systems using a variety of communication protocols, Enact puts this kind of information within the reach of manufacturers.

Centralized Data Storage and Aggregation

After collected data is entered into Enact, the real magic begins. Regardless of the data source, Enact stores all data in a central, cloud-based repository from which it can be configured, analyzed, aggregated and compared. Keeping all quality-related information in a centralized system has two primary advantages:

- › Centralized configuration helps to ensure standardization, leading to a deployment that is faster to roll out and expand — and easier to maintain.
- › Centralized data can be analyzed across the company and compared between lines, departments, and sites, to optimize insight into manufacturing operations.

The importance of centralization can't be overstated. Without a centralized data repository, companies can't compare results from different departments, sites, or regions without having to combine data from various systems and trying to match their various formats. Once an organization has all of its data in one place, then the real value can be extracted through analysis, comparison, and aggregation.

Data aggregation enables the platform to analyze large amounts of data while still providing fast performance. Imagine being able to answer the following questions with ease:

- › Which sites are having the most issues with specification limit violations?
- › Which production lines within those sites are responsible?
- › Which production lines give away the most product?
- › Which products have the highest scrap rate, regardless of where they are made?

These questions are a few examples of long-term analyses that can be performed to gain the maximum benefit from data collected across the organization.

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Reusable Dashboards and Notifications

On today's plant floor, data is in no short supply. In fact, too much data can make it difficult for manufacturers to filter out the noise and focus on the details they need. Enact provides a highly visual user experience to help streamline the learning curve and deliver the specific information that users need, when and where they need it. Users simply tell the system what they're responsible for and it surfaces everything for them, telling them what needs to be collected, when, and where.

Enact's visual dashboards are available on any device, including smartphones and tablets. These dashboards comprise a collection of tiles, which can be arranged to show users the precise data they need to see. Dashboards are easy to configure, and Enact even has a pre-created dashboard so users can begin collecting data immediately. When configuring dashboards, just drag and drop tiles that provide notifications, data collections, summary information, analysis tools, and more.

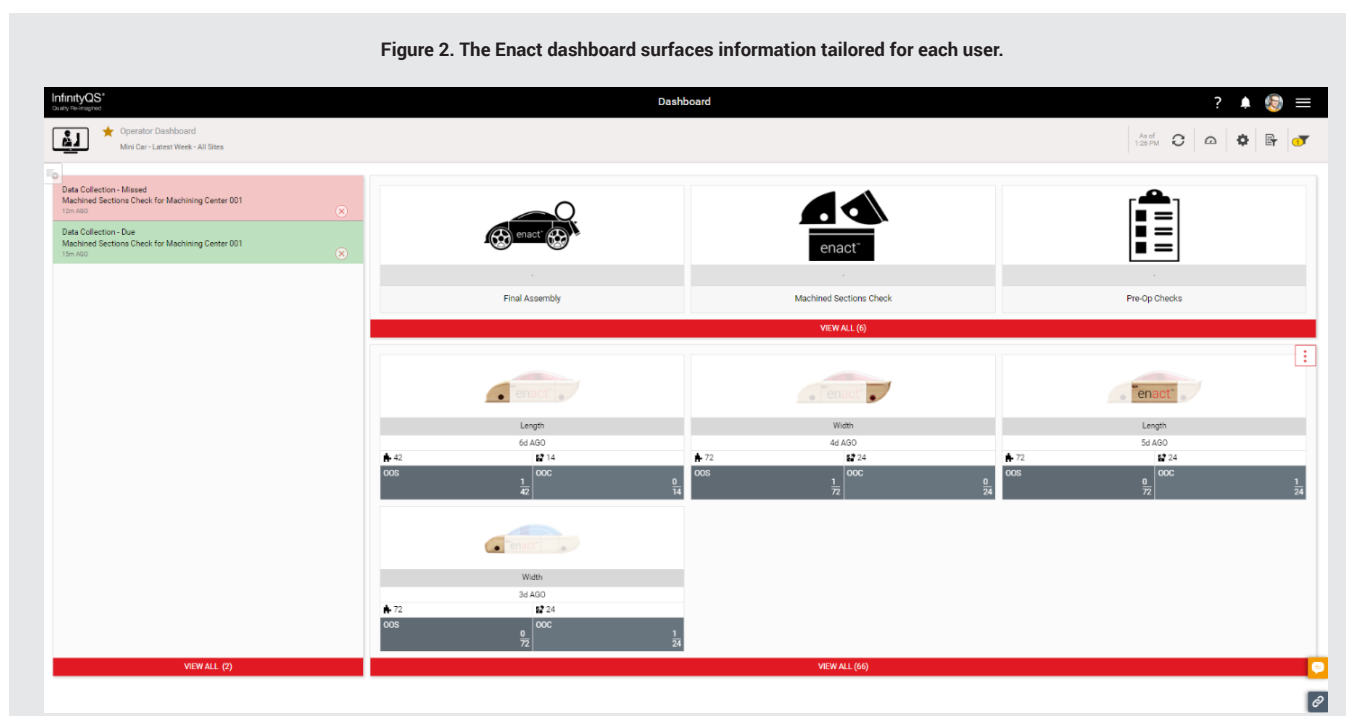
After a dashboard has been created, users of different roles and access levels can customize it to meet their needs. Enact brings this level of flexibility to give organizations the benefits of standardized analysis while giving users the tools they need to improve the quality of processes and products:

- › Set user visibility anywhere from a single production line up to the entire company.
- › Use filters to focus the dashboard to specific criteria, such as selected products, processes, lots, features, tags, shifts, and date ranges.
- › Apply various parameter sets to a dashboard to instantly change the data-selection criteria while retaining all the analysis tiles.

Thanks to these features, users of a specific dashboard all see data in the same way, helping to consistently enforce quality initiatives.

The flexibility of Enact dashboards bring organizations the benefits of standardized analysis while giving users the tools they need to improve the quality of processes and products.

Figure 2. The Enact dashboard surfaces information tailored for each user.



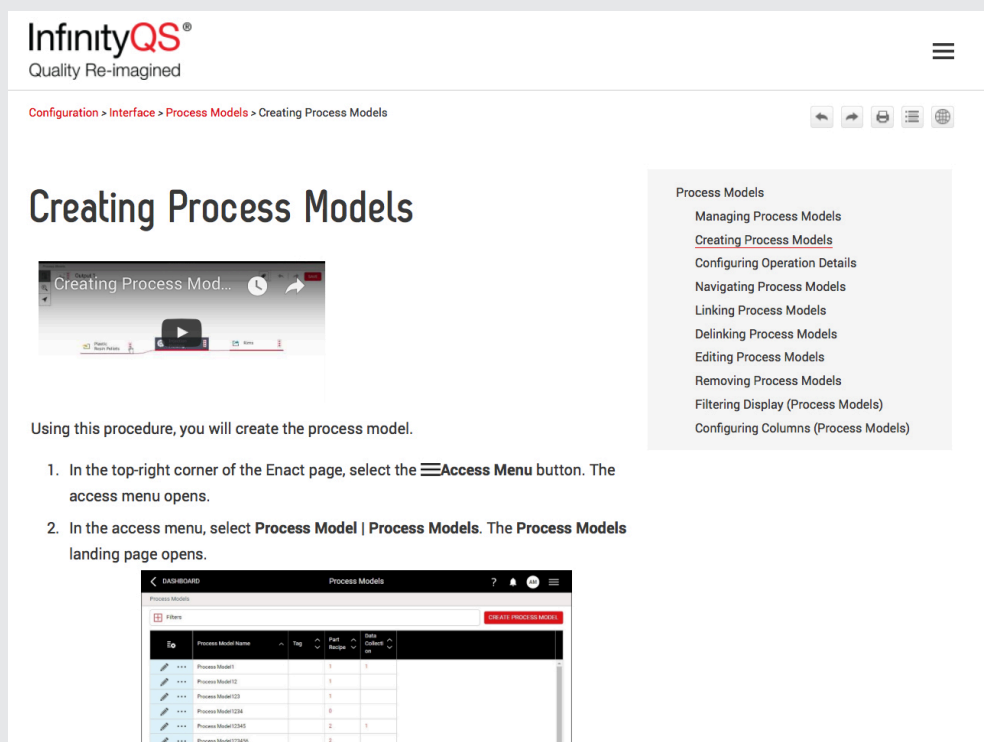
Cloud-Based Savings

As a native cloud-based application that operates within the SaaS model, Enact offers simple, cost-effective scalability to manufacturers whose IT resources are likely strained after years of cost-cutting and technology disruptions. No need for a significant up-front investment in hardware or the burden of a large software installation or deployment. Enact is easy to deploy and configure, and the SaaS model supports easy scalability as needs change. Pay only for what you need, and contract or expand your deployment as a site grows — or as your business adds sites.

The platform also offers advantages in backup and maintenance. There are no costly, time-consuming upgrades with Enact. Rather, automatic updates add functionality as new features become available. There's no need to worry about onsite hardware failure, and Enact provides redundancy and service level agreements (SLAs) to offer peace of mind regarding availability and performance.

Enact also saves resources by providing robust self-service capabilities that help users get the information they need without IT intervention. Context-sensitive Help is currently available in English, German, and Spanish and directs users to instructions, tips, videos, tutorials, best practices and getting started guides, FAQs, industry examples, and more.

Figure 3. Help resources are easy to browse and search.



InfinityQS®
Quality Re-imagined

Configuration > Interface > Process Models > Creating Process Models

Creating Process Models

Using this procedure, you will create the process model.

1. In the top-right corner of the Enact page, select the **Access Menu** button. The access menu opens.
2. In the access menu, select **Process Model | Process Models**. The **Process Models** landing page opens.

Process Models

- Managing Process Models
- Creating Process Models
- Configuring Operation Details
- Navigating Process Models
- Linking Process Models
- Delinking Process Models
- Editing Process Models
- Removing Process Models
- Filtering Display (Process Models)
- Configuring Columns (Process Models)

Process Models

Process Model Name	Tag	Part Package	Help Default on
Process Model1	1	1	
Process Model12	1	1	
Process Model123	1	1	
Process Model1234	2		
Process Model12345	2	1	
Process Model123456	2		

The Future of Quality

Enact rewrites the expectations and re-invigorates the strategic potential of quality intelligence for manufacturers. Whatever your industry, Enact provides focused, system-wide visibility, in-depth knowledge, strategic insight, and contextual understanding to support consistent process and quality improvements. As a result, manufacturers gain the power to prevent costly problems and waste, improve product yield and quality, and cement customer loyalty and brand reputation. Enhanced mobility and a cloud-based, scalable SaaS model add to the value of this Quality Intelligence platform. See for yourself: Visit <http://www.infinityqs.com> to request a demo of Enact and to learn more.



About InfinityQS International, Inc.

InfinityQS International, Inc.® is the global authority on enterprise quality. The company's Quality Intelligence solutions deliver unparalleled visibility and strategic insight across the enterprise, from the shop floor to the boardroom, enabling manufacturers to re-imagine quality and transform it from a problem into a competitive advantage. Powered by centralized analytics, InfinityQS solutions provide operational insight to enable global manufacturers to improve product quality, decrease costs and risk, maintain or improve compliance, and make strategic, data-driven business decisions. Headquartered near Washington, D.C., with offices in Seattle, London, and Beijing, InfinityQS was founded in 1989 and now services more than 2,500 clients — from the smallest to the world's leading manufacturers — including Ball Corporation, Boston Scientific, Graham Packaging, and Medtronic. For more information, visit infinityqs.com.

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